

## Things to Know, Understand and Do For Chapter 11: Molecular Composition of Gases

*By the end of Chapter 11, you should*

<b>Know how to...</b>
State Gay-Lussac's law of combining volumes
State Avogadro's Principle
Define standard molar volume and use it to calculate gas masses and volumes
Use standard molar volume to calculate molar mass and density of gases
State and perform calculations with the ideal gas law
Using the ideal gas law calculate the molar mass of a gas and gas density
Use a chemical equation to specify volume ratios for gaseous reactants and products
Use volume ratios and the gas laws to calculate volumes, masses, or molar amounts of gaseous reactants and products
Perform Stoichiometry with gases

<b>understand...</b>
That equal volumes of gases have equal numbers of particles at the same temp and pressure
Volumes of gases combine in small whole number ratios at constant temperature and pressure
How the ideal gas constant was derived and what its units are
How the ideal gas constant can be reduced to Boyle's, Charles', Gay-Lussac's, and Avogadro's Laws
How Law of Combining Volumes and Avogadro's principle apply to gas volumes in chemical reactions
How all the material in chapters 7, 8, 9, and 10 are dove-tailed together in this chapter

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